

Noyes (H.D.)

REPORT  
ON  
OPHTHALMOLOGY  
FOR  
1871.

BY  
HENRY D. NOYES, M. D.,  
NEW YORK.

[REPRINTED FROM THE N. Y. MEDICAL JOURNAL, MARCH, 1872.]

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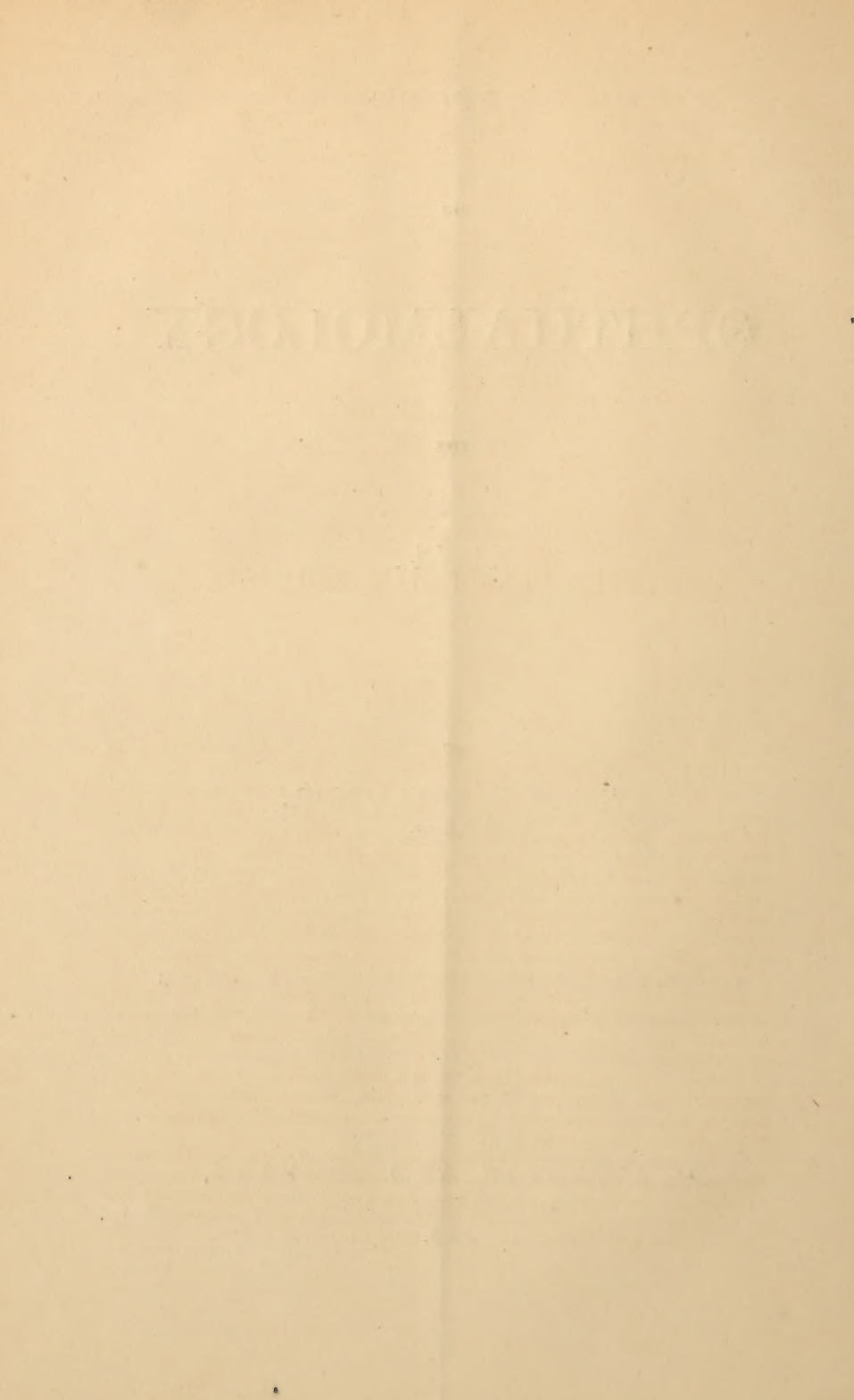
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1.—*The Support of the Eyes during Expiratory Blood-pressure.* By Prof. F. C. DONDERS. [Archiv. f. Oph., xvii., 1, 80.]

ON the occasion of a recent visit to England, Prof. Donders had his attention called by Darwin to a theory propounded by Sir Charles Bell that the closure of the eyelids serves to protect the globes against injurious pressure (during the act of coughing or sneezing) of the sudden rush of blood, caused by these expiratory acts. After some investigations Prof. Donders was convinced that in these acts the arterial pressure is increased, but quickly abates. Further, during expiration, the jugular vein becomes distended, and is emptied during inspiration; and its distention is not due to regurgitation of blood from the chest. On examining the vessels in the fundus oculi, it was found that, during forced expiration, the veins become larger, and light pressure on the globe with the finger makes the veins smaller. When the superficial ocular vessels are examined with the microscope, the arteries are little changed, while the veins increase in size during violent expiration.

It may justly be inferred that the lids under these circumstances give support to the circulation of the eye. The internal ocular circulation finds its greatest support in the normally tense condition of the globe and in the elasticity of its coats.

Other effects of forced expiration are distention of the orbital veins, and consequent protrusion of the ball. The degree of prominence of the eye varies with the width to which the lids are separated, and in each act of winking the globe moves to a slight degree backward or forward. In efforts of accommodation, the globe slightly advances.

2.—*The Eye in Acephalous Monsters.* By Prof. W. MANZ, Freiberg [Virchow's Archiv., Bd. li., Hft. iii., S. 313-349.]

By careful study of eight embryos born without brain, Prof. Manz endeavors to determine the relations of the optic nerve to the brain in its development.

If the accepted theory, that the opticus is merely an outgrowth from the brain, be tenable, it is greatly interesting to know what becomes of the nerve if the brain is wanting. The result of his inquiry was, that the structure which in these cases represents the nerve contains no nerve-tissue, and is in fact no nerve. In the retina, only the opticus fibres and the ganglion cells are deficient. The rest of the retina and of the eye present no anomalies.

After making this statement, an elaborate account is given of the peculiarities of the embryonic eye in its various structures. A few items may be selected:

The epithelium of the membrane of Descemet passes as a continuous layer from the cornea over the ligamentum pectinatum upon the iris. The stroma of the choroid has no pigment. The superjacent epithelium is well developed and filled with pigment-granules. The hyaline membrane of the vitreous is distinct from the capsule of the lens and from the membrana limitans of the retina; cell-forms pervade the whole corpus; there are no other vessels than the central artery, saving in one specimen, in which a branch of a posterior ciliary artery came directly through the membranes into the vitreous. The optic nerve looks normal, and has the usual double sheath; the intervaginal space is clothed with epithelium. As the nerve passes into the sclera, it does not undergo the constriction which belongs to the developed state, but continues of the same diameter as when outside the bulb. The nerve-sheaths pass into the sclera, and the nerve adheres intimately with the choroid, and nothing but the vessels mark the place of its connection with the retina. There is no border to denote the outline of the optic disk. The vessels spread out equally in all directions, not as when fully grown, the larger vessels going upward and downward. The arching toward the macula does not exist, and no macula lutea appears. All the layers of the retina except optic fibres and ganglion cells could be identified.

As the opticus was traced into the skull, it became flatter and was lost in a mesh-work of blood-vessels and connective tissue. The time when nervous structure appears in this cord is undetermined. It is clear, however, that the retina attains its development independently, and the nervous connection between it and the brain is established much later—the fibrous cord, which is first produced, serving as a nidus for the growth of nerve-fibres, but whence these come is not clear.

3.—*Historical Notice upon Basedow's Disease (Heart-Disease and Bronchocele, with Occasional Exophthalmus.)* By Dr. E. EMMERT. [Archiv. f. Oph., xvii., 1, 203.]

The writer, who has spent some time in England, where, according to his observation, the disease prevails more than in Germany, discusses the question as to whom the right of priority in discovery belongs. Graves's name is attached to it in England, and Basedow's in Germany and France. It appears, however, that in the library of Guy's Hospital is a work in two volumes, by Dr. Parry, printed in 1825, who gives a special chapter to "Enlargement of the Thyroid Gland in Connection with Enlargement or Palpitation of the Heart." He gives histories of eight cases, in one of



which there was exophthalmus; their striking features were heart-palpitations, strong carotid and weak radial pulse, and its frequency 113 to the minute, sometimes intermittent. In five more cases there were in addition epilepsy, deafness, headache, vertigo, and other nervous symptoms. The histories are next quoted in detail and are easily recognizable as the malady described by Basedow in 1840, and by Graves in 1843, but to which, if any man's name is to be attached, it should be Dr. Caleb Hillier Parry's.

4.—*Xanthelasma Palpebrarum*. By Dr. MANZ, of Freiberg. [Klin. Monats, August-September, 1871, 251.]

This case, a woman sixty years old, exhibited the yellow blotches on the skin of all the lids, and they were so large as to require removal from one upper lid. The microscopic examination showed them to consist of an hypertrophy of fatty tissue interspersed among fibres of connective tissue. The fat-globules were most abundant about the hair and other follicles. Cases of the above are common enough, but seldom call for operation.

5.—*Cases of Temporary Anchyloblepharon*. By Mr. C. J. WORKMAN. [Oph. Hosp. Reports, vol. vii., part i., February, 1871, p. 1.]

The above title does not convey the real idea of the paper, which is to set forth a simple and ingenious method devised by Mr. Bowman, to increase the effect of operations for ectropium, by temporarily uniting the upper and lower lids to each other. The method may consist in turning down or up, as the case may be, a tongue of skin  $1\frac{1}{2}$  line wide and uniting it to a prepared surface of the opposing lid, or the opposed edges of the lids may be carefully denuded on the inner edge for a narrow space and fastened to each other by fine sutures set deeply into the fibro-cartilage, and not removed for from five to seven days.

One of the cases had necrosis of the orbit and a fistulous opening, with subsequent ectropium, by slow contraction of the tissues. A plastic operation was done, and the lids united by a bridge. Several operations were needed, which were greatly assisted by the intercalated flap. This was maintained for two years, and, when severed, the eyelids were able to keep themselves in proper position.

The temporary adhesion of the lids by paring a part of their edges was successfully used in treating ulceration of the cornea provoked by ectropium, and also in a case of paralysis of the orbicularis during the time needful for recovery.

6.—*Kerato-Conus and its Treatment*. By Dr. STEINHEIM, of Bielfeld. [Archiv. f. Oph. und Otol., ii., 1, 166-176.]

We have the history of three cases treated by the method which Graefe proposed, whose purpose is to change the shape of the cornea, although its flattening is secured at the expense of a central leucoma. The summit of the cone is carefully sliced off to the extent of  $\frac{3}{4}$  to  $\frac{5}{8}$  of a line, avoiding perforation. The ulcer is touched several times daily with a crayon of nitrate of silver, for two to four days, to set up inflammation and destruction of tissue, until, being made very thin, paracentesis is performed and frequently repeated. The ulcer is not allowed to heal until by contraction the form of the cornea is seen to approximate to the normal. After healing occurs, which will be in from three to eight weeks, an iridectomy for purely optical purposes completes the case.

Results in the three cases related were very satisfactory, and in one this is made graphically evident by the patient's skill in drawing. He made

sketches of the appearances to himself, before the operation, of a dot, of a line, of a circle, and of other figures, and sketched them again after the operation. The cuts are interesting to study, as showing how strange were the dispersive forms, and how they were modified by the change in shape of his cornea.

7.—*Intermittent Blepharospasm.* By Dr. SEELIGMÜLLER, in Halle. [Klin. Monatsbl., Jahr. ix., August and September, 203.]

A farmer's wife, aged fifty-nine, had suffered for thirty years from blepharospasm. Her eyelids would from time to time close, and remain shut for some minutes, despite any efforts she could make to open them. After a while she would lift them with her finger. The attacks happened sometimes two or three times an hour, again as often as ten times an hour. The circumstances which provoked the occurrence were movements of the eyes, especially downward, movements of the head, especially to rotate it, when the patient would feel a cracking in the joints of the cervical vertebræ. Chewing hard substances often brought on the attacks. In the attempt to read or sew she would be constantly interrupted by the closure of the lids, and on some days could not work at all. The attacks would come more frequently when she had something in both hands than when one hand was free. Besides these and other physical causes, mental excitement was a sufficient provocative, such as anger or hearing "dreadful stories." A sudden noise or loud voice would excite the trouble.

Rarely, when the lids shut, could she open them without the help of her hand. Their appearance, when closed, did not suggest spasmodic action of the orbicularis, but resembled more nearly paralysis of the levator palpebræ, because there was no contraction of the neighboring facial muscles. She would sit as if merely asleep.

The history was as follows: She was perfectly well until the age of twenty-six, when she had severe toothache, chiefly on the left side, and the teeth fell out of themselves. Headache, too, took place, and more on the left side. Exposure to the weather, and a long journey on foot during a cold night, when she had toothache, were the direct causes of the beginning of the trouble. She began to have dimness of sight in near vision, and, while sewing, would have to stop, and rub eyes and forehead to clear her sight. From these frequent stoppages gradually the blepharospasm developed. Continuing to suffer from these symptoms, notwithstanding various liniments applied to the forehead, she submitted to neurotomy of both supra-orbitales. But this operation, as well as injection of morphia, faradization, and blisters, proved inefficacious. After its performance the disease was worse.

She applied to Prof. Graefe, who discovered a point behind the last molar of the lower jaw which, when pressed, dissolved the spasm, and the eyelids sprang open. He, however, declined to attempt any operation. Patient has been regular in menstruation, was married at the age of thirty-four, at forty-one had twins. Since menstruation has ceased, the spasm of the lids has increased. She is not in the slightest degree nervous or hysterical. Beside the spot behind the jaw, discovered by Graefe, other spots were found which, when pressed, would relieve the spasm. In some the pressure was painful, in others not. The first correspond in part with the painful points of Valleix—they were the supra-orbital foramina, the parietal bosses, the vertex, the transverse processes of the cervical vertebræ, the superior ganglion of the sympathetic in the neck, the brachial plexus under the clavicle, the spinous processes of the upper and dorsal vertebræ. Pressure rather light on these places would soon open the eyes. But strong and longer pressure on other places not painful, such as the left wrist, and the prominences of the radius and ulna, would have the same effect.



Treatment adopted was to endeavor by galvanization to cure the hyperæsthesia of the above painful spots. The negative-pole plate was placed on the middle of the dorsal vertebræ, and the bulb-shaped positive pole was applied to the painful spots for one to two minutes. From six to sixteen elements of a Siemens-Halske battery, with constant current, were used. The effect of the first sitting was highly gratifying. Patient could move the head and eyes in all directions, and could follow the finger as before she could not. At subsequent sittings, if the eyelids closed while the current was in action, a little stronger pressure with the electrode would open them. After fourteen days' treatment, with two sittings daily, the hyperæsthetic spots were not perfectly cured, but were much less sensitive, and the lid-spasm greatly mollified. I could not expect perfect cure from the electricity, and, as the patient wished to go home, I directed a blister to the nape of the neck, to be followed by cantharidal ointment, and the sore to be kept running. I heard, some weeks afterward, that this treatment did no good, and the patient relapsed into her previous condition. Cases similar to the above are cited from Arlt, Wecker, Mackenzie, from Handfield Jones ("Studies on Functional Nervous Disorders," London, 1870, p. 390), and from Dr. Broadbent, *Medical Times and Gazette*, July 9, 1870.

The case is not to be considered one of local reflex spasm of the orbicularis, but rather a general disease of the nervous system.

8.—*Case of Blepharospasm.* Dr. LÆNNICH, Bonn. [Klin. Monatsbl., January to March, 1871, p. 55.]

A soldier was wounded by a piece of shell on the top of the head, tearing up the scalp for two inches behind the coronal suture on the left side. As soon as the wound healed, spasm of the lids of the left eye took place, but ceased when the cicatrix was incised. If the wound were prevented from healing, the spasm did not occur, but, when this was completed, the disease returned. Pressure on the scar relieved it, and it was fully cured by division of the supra-orbital nerve.

This case contrasts with that given above, being one of purely local reflex action.

9.—*Acquired Nystagmus in Mountaineers.* Dr. PAUL SCHRETER. [Klin. Monatsbl., June and July, 1871, p. 135.]

In both cases, one a man of forty-three, the other a man of thirty, the tremulous movement of the globes was first observed at evening, and it became so bad as not only to trouble vision by day, but to render it impossible for him to walk the streets at night. The trouble was greatest with fixation upward and straight forward. By looking far to the side, the eyes were for a time steady. Vision normal—a slight hypermetropia. Treatment was by induced electrical current to the eyes daily, and blisters behind the ears. After six weeks, considerable improvement occurred, but lasted only a short time, when the patient returned, and was subjected to the use of strychnia, by which he was cured, and remained well.

Both cases were much alike in history and symptoms, but the second case did not remain under treatment.

10.—*Upon the Method of Formation of New Blood-vessels in the Inflamed Cornea.* By Dr. W. H. CARMALT, of New York, and Prof. S. STRICKER. [Medizinische Jahrbücher, Wien, 1871, P. 3, S. 428.]

The experiments were undertaken upon the eyes of frogs and rabbits, in which corneal inflammation was excited by drawing a thread through the membrane, and leaving it until the desired effect occurred. As soon as vessels could be found, the cornea was examined by the microscope. The

new-formed vessels were very numerous, and within them was found a mass of shining bodies of about the size of the nucleus of a blood-corpuscle. Outside of the vessels, and separate from them, were certain oblong, spindle-shaped bodies, standing perpendicular to the vessels, and filled with precisely similar elements to those contained in the vessels. Furthermore, these minute elements were found in the corneal substance.

These bodies were not precisely like blood-corpuscles, and are regarded as being formed in the inflamed tissue, and similar to embryonic blood-globules.

The blood-vessels may be found in the new tissue, both with and without continuity from the surrounding marginal vessels. They originate sometimes certainly in the fusiform cells above alluded to. Stricker himself says that he is convinced that vascular tubes are originally solid cylinders of protoplasm, which afterward become hollow.

- 11.—*The Treatment of Sämisch's Ulcus Corneæ Serpens.* By Dr. HERMANN PAGENSTECHER. [Oph. Hosp. Reports, vii., 1, 21.]

The result of the experience of Dr. Pagenstecher is, on the whole, favorable to the method commended by Sämisch. The large incision through the ulcer gives great relief, and the wound is afterward kept open by pressure of the finger on the lids. The aqueous evacuated on the evening of the first day, and sometimes its outflow procured as many as three times in a day, usually twice daily. Seldom was it needful to use a probe or other instrument in the wound. But the reopening is not kept up so long as Sämisch indicates, being done rarely longer than a week, usually for only four days. Pressure bandage, atropine, and hot water resorted to as usual.

It may be added that the repeated opening of the wound by an instrument may give rise to serious irritation; a secondary purulent keratitis may be then excited, as in some cases I have seen. The value of the remark about effecting the escape of aqueous by means of light pressure on the lids will be therefore better appreciated.

- 12.—*Paralysis of Trigemini followed by Sloughing of the Cornea.* By Dr. W. F. NORRIS, Philadelphia. [Trans. Am. Oph. Soc., 1871, 138.]

*Cases of Paralysis of the Fifth Cerebral Nerve.* By Dr. H. D. NOTES, New York. [New York Medical Journal, August, 1871.]

- 13.—*Report of Thirty-eight Cases of Paralysis of Accommodation, from the Clinic at Kiel.* By Dr. SCHEBY-BUCH. [Von Graefe's Archives, xvii., 1, 265.]

*Observations in Cases of Paralyzed Accommodation.* By Dr. COLSMAN, of Barmen. [Archives für Oph. und Otol., ii., 1, 154.]

- 14.—*Peculiar Forms of Exudation in Iritis.* By Dr. H. SCHMIDT, Marburg. [Klin. Monatsblat., ix. Jahr., 1871, 94.]

Two cases are given. A man, twenty-three years old, had rheumatic iritis. On the second day a grayish semi-transparent exudation filled the inner half of the anterior chamber, and ten days after it had been again absorbed. Now a bluish-white transparent vesicle appeared on the previously-covered part of the iris, and reached a little distance up on the lens capsule. This continued two days, then vanished, leaving only a slight synechia. It is not stated that the mass was really a cyst, but that it resembled one.

Another man, aged twenty-six, with iritis, which is not said to be



syphilitic, but for which mercurial inunction was prescribed. The anterior chamber very deep, and occupied by a gray, opaque mass, which looked like a luxated lens, above whose upper edge the pupil could be seen in a crescent about  $\frac{1}{4}$  line high and  $1\frac{1}{2}$  line long, after atropia had been freely used. It was impossible to use the ophthalmoscope. Patient can count hands at  $3\frac{1}{2}$  feet. The diagnosis was luxation and cataractous opacity of the lens, with secondary irido-choroiditis. Two days after the anterior chamber was clearer. On the third day a hæmorrhage into the chamber took place. The upper edge of the mass now appeared to be serrated, and the free pupillary space had enlarged. It was now evident that there was no dislocation of the lens. In a week the mass was nearly absorbed. The last portions occupied the lens capsule, and were surrounded by free pupillary space. At a later period the lens were seen to be *in situ*. The vitreous filled with flocculi; and, finally, patient discharged with v. =  $\frac{1}{4}$ . The duration of treatment was six weeks.

- 15.—*On the Tables given by Loring and Knapp to show the Displacement of the Retina in Ametropia.* By Dr. O. F. WADSWORTH, of Boston. [Transactions American Oph. Soc., 1871, p. 87.]

In the report made last year it was remarked that a table given by Dr. Knapp, to show the amount of actual displacement of the retina for any given degrees of ametropia as expressed by convex or concave glasses, differed in an important way from a table given by Dr. Loring, based on formula worked up by Dr. Mauthner. The remark was made that the discrepancy might be only apparent, yet, if it were, the subject is of such practical importance as to deserve elucidation. Dr. Wadsworth has been kind enough to investigate the calculations, and shows that the separate results may be harmonized. To quote his words:

"Loring, following Mauthner, in the use of a formula given by Helmholtz, shows in his table the amount of displacement in certain degrees of ametropia. Knapp, using another formula given by Helmholtz, shows the amount of displacement in degrees of ametropia, which are corrected by a lens, of a certain number of inches focal distance (positive or negative), placed at the anterior principal focus of the eye. The anterior principal focus of the eye being 20.29mm., almost exactly  $\frac{3}{4}$ " in front of the second nodal point, we must therefore subtract  $\frac{3}{4}$  of an inch from the number of the glasses given by Knapp, to obtain the degrees of hypermetropia, and add  $\frac{3}{4}$  to obtain the degrees of myopia referred to in his table."

It is shown that there is no important error in the calculations of either gentleman, although, as the figures appear to the tolerably careful scrutiny of an unmathematical reader, there is a puzzling difference. A practical suggestion, which we hope to see carried into effect, is to form a complete table of the amount of displacement of the retina corresponding to all the degrees of ametropia between  $\frac{1}{2}$  and  $\frac{1}{48}$ , taking the intervals, as Javal has done, at  $\frac{1}{48}$ . This to be done on the plan of Knapp's table, which includes the distance of the spectacle-glass from the patient's eye. An ophthalmoscopic observer can bring himself almost to as close approximation to the eye as the spectacles, and the formulæ calculated for spectacles would be almost correct for the ophthalmoscopist. Another table could be made in which the observer's eye should be allowed to be one inch from the cornea, and this would be constantly referred to in estimating the location of foreign bodies, the height of tumors, the thickness of exudations, the swelling of the papilla, etc. For example, take both II and M; for

$$\frac{1}{2}, \frac{1}{24}, \frac{1}{24}, \frac{1}{24}, \frac{1}{8}, \frac{1}{34}, \frac{1}{34}, \frac{1}{4}, \frac{1}{44}, \frac{1}{5}, \frac{1}{6}, \frac{1}{7}, \frac{1}{8}, \frac{1}{10},$$

$$\frac{1}{12}, \frac{1}{16}, \frac{1}{24}, \frac{1}{36}, \frac{1}{48}.$$



Do this for spectacles at  $\frac{1}{2}$  inch from the cornea, and for an ophthalmoscopic observer at 1 inch from the cornea.

16.—*On the Effect of Atropine upon Myopic Eyes.* FRED. HORCH. [Inaug. Dissert. Basel, 1871.]

There are 57 observations upon 29 myopic persons belonging to Prof. Schiess's practice in Basel, for whom a solution of atropine gr. iv ad  $\frac{1}{2}$  j was prescribed. The same practice had been followed by Dobrowsky. In 11 instances no immediate benefit ensued. In 46 cases immediate good effect was produced. In 31 cases permanent improvement was obtained. This was decided by an examination of the refraction and vision, not only after the treatment had been suspended, but after the patient had resumed his usual work for weeks or months. After the lapse of a still longer time, about half of these patients continued to show the improved condition which treatment had effected: 10 had relapsed to the *statu quo*, and in 5 only had myopia progressed. The result shows that, by suspending the accommodation, one of the most potent agents in making myopia progressive is set aside. The treatment was maintained for various periods from four weeks to six months.

17.—*Remarks on Cataract.* By Dr. E. G. LORING. [Trans. Am. Oph. Soc., 1871, 108.]

To correct the astigmatism which often results after cataract extraction, Dr. Loring proposes to cement together a spherical and cylindrical glass. To reduce the weight, he makes the spherical a plano-convex glass whose outline is circular, and its diameter that of the spectacle-frame, the plano-cylindrical has an oval outline, and the two together are lighter than a common biconvex spherical glass of two or three inches' focus.

The glasses may be cemented so as to be very strong in their adhesion, and no more liable to separate than telescope-glasses.

Another point which the paper discusses is, that the standard of perfect success after cataract extraction has in late years undergone a change; that, for flap-extraction, Graefe in his first 1,500 cases adopted  $v. = \frac{1}{4}$  as "perfect" and  $v. = \frac{1}{6}$  as also "perfect," if patients were over seventy-five years old; that now Dr. Knapp, Dr. Becker, Dr. Derby, of Boston, and others, give statistics in which first-class or "perfect results" are based upon  $v. = \frac{1}{16}$ .

Dr. Loring attempts to show that this change of standard must have a modifying effect upon the prevailing opinion of the great superiority of the new peripheral linear over the old flap operation; that, estimated by the acuity of sight, the flap sustains its prestige better than it has lately been considered that it could.

Following Dr. Loring's paper, an article appeared, by Dr. H. Derby, in the *Boston Medical and Surgical Journal*, November 23, 1871, claiming that Von Graefe did not apply the standard of  $v. = \frac{1}{4}$  to all his 1,600 flap-extractions, but only to about the last 100 of them. To this Dr. Loring rejoins in the *Boston Medical and Surgical Journal* of December 28, 1871.

Without following either of the disputants in the details of their argument, this point at issue whether Graefe in 1863, meant by "perfect success,"  $v. = \frac{1}{4}$  or "ability to read fine print," which Dr. Derby thinks may permit  $v. = \frac{1}{16}$ . This point is easily decided by reference to Zehender, *Klin. Monatsbl.*, for 1864, page 343, which gives a discussion of the Heidelberg Congress on cataract operation, and certain remarks of Graefe. His language is: "I am now occupied in preparing statistics of 1,600 flap-extractions, and I divide their results into four classes:

"1. Perfect result; vision equals at least  $\frac{1}{4}$ , the patients can also read the finest print.

"2. Vision is greater than  $\frac{1}{30}$ ; patients can only recognize the largest test-type, but, if the eccentric vision is in due proportion, easily get about.

"3. Patients can at least count fingers at one foot.

"4. Patients unable to see as much as this, but have either the minimum of qualitative perception or quantitative perception of light, or can see no light whatever."

The statement that perfect vision means  $\frac{1}{2}$ , and better, is extremely explicit, and must make every candid reader feel sure that  $v. = \frac{1}{2}$  is what Graefe says he obtained in his first class of cases. If this flat statement needs any confirmation, the second category, which descends at once to  $v. = \frac{1}{30}$ , would abolish all doubt.

It is evident that, in comparing methods, we must criticise results with greater care. At the same time, that a larger number of less absolutely perfect results may be attained by the peripheral linear than by flap is, if it can be proved to be a fact, a very strong argument in its favor when the issue between one method and another is to be tested.

It remains to be seen whether by Graefe's operation the number saved from entire failure or useless vision is not greater than by the flap. But the flap may be able, perhaps, to claim that its measure of success, in scale of sight, exceeds that of the peripheral linear.

Hence we may yet arrive at the conclusion to adopt one or the other kind of operation, according to the chances of success in a particular patient.

We seem destined to an endless succession of suggestion, as to the mode of making incision for extraction. Dr. Liebreich tells us that three hundred times he has made a cut transversely across the cornea just below the horizontal meridian, using Graefe's knife and not doing iridectomy. Statistics and visual acuity not given.

Dr. Galizowski, in his late treatise, finds reason for an incision at the outer margin of the cornea with a lance-shaped knife—a modified Weber method.

Dr. Canstatt combines reclamation and extraction—thus: a slightly-curved needle is passed into the sclera close to the lens, corneal section is made upward, the aforesaid needle is used to pry the lens and capsule through the pupil; by light pressure they come out. Five cases have been thus treated, and "with perfectly satisfactory result." That is all we know about them.

18.—*The Modern Operation for Cataract.* A Lecture by Dr. H. DERBY, of Boston, with an Analysis of Sixty-one Operations, 1871.

This is a lucid and detailed account of Graefe's mode of operating, and subsequent treatment of the cases. Besides quoting statistics from Graefe, Becker, and Knapp, Dr. Derby adds the results of sixty-one cases on which he operated, and they are as follows: Failures, 3; undetermined, 3; unrecorded, 5; vision  $\frac{2}{3}$  to  $\frac{1}{10}$ , 44; vision  $\frac{1}{11}$  to  $\frac{1}{30}$ , 6. Total, 61. Of the 44 "entire successes,"  $v. \frac{1}{2}$  and better = 19; between  $\frac{1}{2}$  and  $\frac{1}{10}$  = 25. There were 8 with  $v. = \frac{2}{3}$ , and also 8 with  $v. = \frac{1}{10}$ , and 9 with  $v. = \frac{1}{2}$ .

19.—*On Extraction of Cataract.* By Prof. VON HASNER, [Vierteljahrsschrift für die Praktische Heilkunde, xxviii., 1871, Bd. 11, 73.]

The drift of this article is to call attention to the fact that the most serious dangers threatening success after cataract extractions are not from suppuration of the wound or of the cornea, but spring much more commonly from inflammations of the iris, ciliary body, capsule, vitreous, and choroid. An important factor leading to these complications is imperfect opening of the capsule, and consequent partial retention of lens-substance.

Instead of a simple linear incision either vertical or horizontal, Prof. von H. favors an inverted V-shaped incision, the apex of which shall go far down toward the equator. (Prof. Hasner usually does the simple flap-extraction without iridectomy.)

In spite, however, of this precaution, capsular cataract may ensue by the folding in or wrinkling of the torn edges, or their pushing again into the pupil. The posterior capsule may also become thickened. As an attempt to get rid of this annoyance, Prof. H. makes a linear cut into the posterior capsule after the lens has been removed. The vitreous comes forward and pushes asunder the flaps of the torn capsule, and in most cases secures a clear pupil. This manœuvre has been done in more than a thousand patients within seven years.

It was published several years ago, and the author, while strongly commending it, hopes that now the suggestion will meet more attention than it could at that time, when the stream of ophthalmology ran so violently in another direction. What is meant by this allusion will be understood by recurring to his controversy with Graefe. So far as we know, no one has adopted this proceeding, probably because it would seem to invite an unpleasant prolapse of vitreous. The pointed way in which Prof. Hasner insists that this danger is not a real one for the *practised* operator may not suffice to remove even from such minds all fears. Certainly a large capsular opening is highly important.

20.—*Neuritis Optica from Lead-Poisoning.* By Dr. SCHNELLER, Danzig. [Klin. Monats., August and September, ix., 1871, p. 240.]

The case recorded is clearly one of lead-poisoning, and in this respect has decided clinical value. The man, forty-four years old, was a painter, and his general symptoms were the blue line on the gums, slight constipation, the skin of grayish tint. Only the left eye was seriously affected. There was central scotoma,  $v. = \frac{1}{100}$ . Right,  $v. = \frac{1}{2}$ . The optic nerves were reddened, not swollen, a little hazy, borders indistinct, covered by a thin veil which also rendered the retinal vessels dim. The arteries of normal size, and very tortuous; the veins so much like them as to be difficult to distinguish. The case improved under iodide of potassium, derivatives, blue glasses, and rest. The author also adds another case, and attempts to show that the features of this kind of neuritis may be differentiated from other forms by certain peculiarities—especially because the veins so closely resemble the arteries in size and outline. He thinks their moderate size is due to contraction of the muscular coat, and that this establishes an analogy between the neuritis and the usual symptoms of lead-colic. We can hardly admit the conclusiveness of the reasoning by which the neuritis is asserted to be typical, but we are glad to have a case so well reported, in which the etiology is less conjectural than it has been in some so-called cases of saturnine neuritis or atrophy.

21.—*Detachment of the Retina under the Influence of Chloroform.* By Dr. R. SCHERNIER, Greifswald. [Klin. Monats., ix., August and September, 246.]

A seamstress, age twenty-seven, with m.  $\frac{1}{2}$ , and staphyloma posticum, in whom the above accident occurred, upon awakening from chloroform narcosis.

22.—*On Lead-Poisoning as a Cause of Optic Neuritis.* By JONATHAN HUTCHINSON, F. R. C. S. [Oph. Hosp. Reports, February, 1871, 6.]

The five cases quoted were all distinct cases of the general malady; in all, both eyes were affected, but in one of them the eyes were not both



taken at once, but at an interval of three years. The first case, which was published before, was peculiar in that there were retinal apoplexies, in addition to neuritis. In the other cases, the nerves presented the pale and dirty-gray look of the latter stages of neuritis. In some, the edges of the disk were "fluffy," and, in others, the edge is said to be concealed by lymph. But in no case is it said that the exudation looked recent, or that there was hyperæmia of the nerve, as in Dr. Schneller's case. The inflammatory action is evidently subacute, and the result atrophy to a greater or less extent. Two cases remained permanently blind, two were under treatment, and, of the other, the result is not stated.

23.—*Atrophy of the Optic Nerve within the Brain, associated with Pressure. Excavation of the Papilla.* By Prof. HERMANN SCHMIDT, Marburg. [Archiv. f. Oph., xvii., 1, 117.]

A woman, aged sixty-one, had been blind in one eye for five years, and a similar trouble appeared in the other. There were none of the outward signs of glaucoma, such as diminished sensibility of the cornea, shallow anterior chamber, etc.; but the tension was on the extreme of the physiological limit, and the papilla was deeply excavated as in glaucoma, the sides of the pit being steep, the vessels greatly displaced, the phenomena of parallax marked, the tissue of the nerve a pale gray; the vessels were nicked as they passed over the edge, but there was no spontaneous arterial pulsation. Both eyes were greatly alike—only one retained  $v. = \frac{2}{3}$ , the other blind. In the better eye the visual field was contracted in the inner, outer, and upper sides.

The diagnosis made by Graefe was glaucoma simplex, and iridectomy intended, but the patient died of pleuro-pneumonia.

Autopsy showed the pia mater in the neighborhood of the cavernous sinus to be hazy, a little thickened, and decidedly œdematous. The optic nerves, for their whole extent to the brain flattened and small. Microscopic examination showed extreme atrophy of the nerve-structure. A section through the left papilla displayed a deep excavation of the nerve, with recession of the lamina cribrosa. The floor of the pit was 4 mm. deep from the inner surface of the sclera. The optic fibres and ganglion layer of the retina were atrophied, its outer layers normal. While the atrophy of the left opticus could be traced up to the chiasm, and the right optic showed partial atrophy, no examination seems to have been made of the brain-tissue, or effort to find some other focus of nerve-degeneration. It is only stated that there were no signs of apoplexy. It is clearly shown that primary atrophy of the optic nerves may sometimes coincide with such an excavation of intra-ocular ends as to perfectly simulate the characteristics of glaucomatous cupping, and a similar case is quoted from Stellwag. The author's explanation is, that advanced atrophy, by diminishing the bulk of the nerve, leaves the lamina cribrosa weaker than before, because its interstices are not so completely filled, and, under the extreme of physiological tension, it may give way, as in real glaucoma. This is not perfectly satisfactory any more than Stellwag's suggestion of an inflammatory process softening the tissues about the lamina, and allowing it to recede. Is it not quite as likely that a natural deficiency in the strength of the lamina cribrosa, and its attachments to the sclera, may, in these cases, have permitted a pressure excavation to develop, which, if the parts had their usual conformation, would only have been the ordinary shallow or saucer-like cupping?

24.—*Anomalous Forms of Retinitis Pigmentosa.* By TH. LEBER. [Archiv. f. Oph., xvii., 1, 314.]

It has been sufficiently established that the disease, to which the above name has been given, is not a distinct individual, but includes a variety of

lesions. The name will, doubtless, for some time to come, be retained, but out of it, as from a nebula, the separate forms will be isolated, and have their individual names. The existence of the pigment in the retina has been a matter of surprise; but, with our more recent notions of the true relations of the pigment, as belonging to the retina and not to the choroid, the wonder will cease, although we may no better understand the real nature of the morbid process. A paper in Schultze's Archives, by Dr. Morano (vol. viii., part i., p. 80), shows this, and is condensed below.

Dr. Leber has done good service in bringing together a series of cases under the following heads:

1. Typical retinitis pigmentosa.
2. Retinitis pigmentosa, with typical visual impairment, and anomalous ophthalmoscopic appearances. To this belong (a) the well-known retinitis pigmentosa without pigment, of which the essential part is interstitial hypertrophy of the retinal neuroglia and atrophy of the nerve-elements.
- b. Retinitis pigmentosa, with spots of choroiditis disseminata.
3. Retinitis pigmentosa, with typical appearances to the ophthalmoscope and anomalous visual disturbances.
- a. Retinitis pigmentosa, with predominant abatement of central vision. This is due to lesion of the centre of the retina, and is often accompanied by nystagmus. Under this head are described four cases, in each of which some symptoms were present, such as hemeralopia, posterior polar cataract, atrophied nerve, small vessels, pigment in the retina, and in all there was marked central amblyopia.
- b. Retinitis pigmentosa, with typical ophthalmoscopic appearances and good central vision, but with anomalies in other characteristics of sight; that is, irregular forms of the visual field, such as fields limited more on one side than another, or with the ring-shaped scotomata. Under this head come the cases where hemeralopia is wanting; and in one case Haase found nyctalopia.
4. Retinitis pigmentosa, anomalous ophthalmoscopic appearances, and with anomalous visual disturbances.
- a. Congenital amblyopia, or amaurosis from retinitis pigmentosa. In many of the cases reported, the sight was very bad at an early age, but no pigment could be found in the retina until several years had elapsed. Out of fourteen cases of this class, four were complicated with deafness. In eleven cases, about which note was made on this point three times, the parents were blood-relations.
- b. Retinitis pigmentosa, not congenital, with central amblyopia, and no retinal pigment.
- c. Chorio-retinitis pigmentosa, with anomalous symptoms. The hereditary character of the cases quoted is the reason for putting it under this head.

5. Retinitis pigmentosa, with unusual course or unequal participation of both eyes, etc. Sometimes the disease progresses rapidly, sometimes with extreme slowness; or, especially with central amblyopia, it may become stationary.

Of all the cases, typical and anomalous, out of thirty-seven, parental consanguinity was found nine times; only twice was it hereditary; in eight families, there was more than one child affected. The influence of syphilis in etiology could not be well made out. In only two cases were mercurials of any service. In all other cases no treatment did any good.

25.—*The Pigment Layer of the Retina.* By Dr. FRANZ MORANO, of Naples, with a plate. [Schultze Archiv für Mikroskop. Anat., viii., 1, 81.]

The author, under direction of Prof. Boll, in the laboratory of Berlin, has studied the so-called choroidal epithelium, and gives the following de-

scription: That the cells are not flat, but are cylinders of small height, consisting of two parts, viz.: an outer, toward the choroid, which is colorless, and made of pale granular protoplasm, and an inner part, which is pigmented. These are to each other as 1 to 3. The nucleus lies in the colorless part, and has one large nucleolus. Oil-drops of an orange hue also belong to the outer part. The pigmented part of the cell seems to be striated longitudinally. In good preparations this part is seen to terminate in long fine hairs running into the retina. The pigment-granules are never round, but needle-shaped, and lie in rows parallel to the fibres. The very tip of the fibres is often colorless. There may be thirty or forty hairs terminating one cell. In other cases the inner extremity of the cell has a pointed form, or a membranous expansion. The hairs thus described penetrate between the rods of the retina as far as to the end of their inner member, that is, to the *membrana limitans externa*. From three to five rods abut against one epithelial cell at the periphery of the retina, but at its centre the cells are smaller, and to each only a single rod will correspond. The above observations were made on frogs and other amphibia.

26.—*The Abuse of Alcohol and Tobacco as a Cause of Amblyopia.* By Dr. L. HIRSCHLER, of Pesth. [Archiv. für Oph., xvii., 1, 221.]

The author appears to have had large experience among the intemperate, and gives the following *résumé* of symptoms of *amblyopia a potu*:

Objects appear as if under a veil, and this dimness comes on suddenly. They are apt to swim and tremble; persons' faces seem to the patient to be bluish or yellow; glistening, metallic surfaces are badly discriminated; only large print (Jaeger 14–20) can be read; at first it seems clearer than it does after looking a short time; objects soon grow hazy and utterly confused. Vision is worst at mid day, and best at twilight and by artificial light.

To external inspection there is nothing abnormal, except perhaps slight conjunctival catarrh. The pupil is contractile, and is quite indisposed to expand. Visual field is intact. Central scotoma is rare. By the ophthalmoscope the nerve may be normal, or slightly reddened, or of a dirty gray; at the later stages it may be white, and indicate beginning atrophy. The amblyopia soon reaches its maximum, and remains for a long time unchanged.

Amblyopia from tobacco differs little in symptoms from the above. The proneness of the pupil to contract is sometimes remarkable.

Amblyopia from other causes, as menstrual troubles or rheumatic processes, etc., etc., may present precisely similar symptoms. The pathology of the disease the author is disposed to locate in the brain-tissue. For treatment, the author relies on entire abstinence from the use of alcohol and tobacco, and a general hygienic method. Local depletion does little good. Attention to digestion, exercise, and fresh air, are most essential.

27.—*The Halo around the Macula Lutea.* By Dr. E. G. LORING, of New York. [Transactions American Ophthal. Society, 1871, p. 73.]

Following upon his interesting inquiries published in the Transactions a year ago, as to the cause of the light streak seen along the axis of the retinal vessels, Dr. Loring now offers some suggestions as to the cause of the halo at the macula lutea, which is sometimes, but by no means always, seen. He thinks, and very plausibly, that this is merely another case of reflection from surfaces which are not on the same level; because at the macula the retina begins to grow thin until it becomes a decidedly depressed surface at the fovea centralis. This change takes place gradually, giving a curved form, and from this curvature arises a halo or reflex. This



is best seen with the inverted image, but it is seen too with the upright image in some cases, as Dr. Loring asserts, contrary to Mauthner's statement, and in this we agree with him.

On the appearance of the reflex from the fovea, Dr. Loring says: "Even when present, it is not, however, always of a crescentic shape, for it sometimes has the appearance as if it were only the segment of a small circle which was illuminated, or as if the fossa were a triangular one, and light were reflected from only one side of it, in which case the reflection streams out something like the tail of a very minute comet; again, it has the appearance of a delicate phantom-like veil, stretched in part or entirely across the fovea; and then, again, there is no reflex at all, and the fovea looks like a small, yellow dot, varying in size and shape, and has the appearance as if it had been flecked directly on to the surface of the retina with a brush.

"May not these differences in effect of the reflection, when present, be due to variations in anatomical construction of the part, and principally to differences in shape and depth of the excavation; and, when the reflex is absent, may not its absence be due to the want of any difference in level?"

28.—*Cases of Choroidal Melano-sarcoma, with Phthisis Bulbi.* By Dr. BERTHOLD. [Archiv für Ophthal., Jahr. xvii., Abth. 1, S. 185.]

The cases were chiefly remarkable for the age of the subjects, one thirteen, the other twenty. In both the eyeballs had become atrophied in early childhood, in one even congenitally. It was assumed that the cause was panophthalmitis from the growth of the tumor. These cases, with some published by Knapp, and others by Forster, are presented as an offset to the prevailing belief in the great malignancy of choroidal sarcomata. They are extremely prone to recurrence; and Graefe, in 1864, could recall no instance in which there had been exemption for more than four years. To have even a few cases with a less gloomy prognosis is satisfactory. On the other hand, it is shown that the disease may make its inroad at a much earlier period than is usually assigned to it.

(A case of choroidal sarcoma in my private collection was taken from a boy twelve years old. I have had no information about its recurrence.—H. D. N.)

29.—*The Origin of the so-called Glassy Excrescences on the Choroid of the Human Eye, and the Nature of Hyaline Degeneration of its Vessels.* By Dr. ALEX. RUDNEW. [Virchow's Archiv., Band liii., Heft 4, pp. 455-465.]

The little masses in question were examined by Donders and Müller many years ago, and called by the former "colloid globules." Others have since written upon them. They appear beneath the epithelium on the glassy lamella of the choroid, and vary from  $\frac{1}{80}$  to  $\frac{1}{2}$  millimetre in diameter. They are extremely indifferent to chemical reagents.

Dr. Rudnew regards these masses as due to transformation of emigrated white blood-corpuscles; he finds them at all ages, and thinks their more frequent occurrence in the old is because in them vascular obstructions are the most common. In this opinion Dr. Rudnew differs from Donders, who thought they came from the nuclei of the epithelium.

In a case of purulent choroiditis accompanying purulent meningitis, Dr. Rudnew found extensive hyaline metamorphosis of the walls of the vessels. Some vessels were thus completely occluded. There was also great abundance of the above-mentioned hyaline globules. It was possible to see that the transparent substance in the vessels was made by fusion of small masses, and Dr. Rudnew concludes that the glassy state of the vessels originates like the glassy bodies of the hyaline lamella, from changes of the white blood-corpuscles.

30.—*Formation of Bone in the Eye.* By Dr. H. KNAPP. [Archives for Oph. and Otol., vol. ii., No. 1, p.1.]

A careful description is given of the minute appearances in five globes in which ossific deposit had taken place. It is clearly shown that there was actual bony production as distinguished from calcification. Dr. Knapp attempts to show in what particular structure, and under what conditions, osteoid growth occurs. His conclusions are, that true ossification has only been found in exudations from the choroid. Calcareous deposits, on the other hand, have been observed in all the structures of the globe. At its beginning the bony formation appears in the chorio-capillaris in small plates, which are covered by the hyaline membrane and epithelium. Where there is more abundant exudation of plastic lymph, the bone-tissue becomes correspondingly thicker, and it may in some cases extend in a transverse septum across the anterior part of the vitreous, behind the ciliary body and lens, without involving those parts.

The diseases leading to this growth are chronic inflammations of the iris and choroid. Both ossification and calcification may occur at once. The diagnosis of either is made by feeling a hard and resisting mass in the deeper part of the globe, beginning about two lines behind the cornea, while the anterior parts are soft, or at least impressible.

The paper concludes with these remarks: "As ossification does not involve the outer choroidal layers, nor the ciliary muscle and iris, it in itself is not to be dreaded as a cause of sympathetic ophthalmia. The latter can only result from irido-cyclitis supervening as a complication to ossific choroiditis.

"As long as an eye in which ossification is diagnosticated remains free from irritation, and its fellow also, the removal of the former for fear of sympathetic inflammation is not indicated. To corroborate this, I may state that I have not unfrequently observed cases in which eyes bearing the signs of ossification, and even being tender to the touch, in the ciliary region, were tolerated without annoyance for twenty, thirty, and forty years."

While all deliberate statements of Dr. Knapp are to be received with the greatest respect, there may be danger of falling into a treacherous security as regards the influence of ossified eyeballs for mischief. His careful discriminations will certainly call attention to what are and what are not dangerous cases; but all surgeons know that one of the most fruitful sources of sympathetic irritation of a healthy eye is ossification or calcification in the other; and while the middle term undoubtedly is irido-cyclitis, the peril is so urgent that a needless operation may well be performed rather than risk a patient's only eye when an atrophied and ossified bulb may be setting up trouble, which at its beginning is not very well defined.

31.—*Iridectomy without Division of the Sphincter Pupillæ.* By B. A. POPE, M. D., of New Orleans. [Archives for Oph. and Otol., ii., 1, 87.]

The operation suggested is designed for cases where only a peripheral pupil is available, and to be most useful must be small. When there are central corneal opacity, without or with iritic adhesions; prolapsus iridis, especially with partial staphyloma corneæ; diffused corneal opacity, most dense at the centre; in case an eccentric pupil is needful, and the sphincter is hard to dilate or adherent—in all these cases the operation is commended as meeting important optical indications. The author has operated six times, and says the existence of a double pupil is not annoying, and, if the new one is below, a habit of drooping the upper lid is soon acquired, and covers the upper pupil. The mode of operating is by a very small

wound, and with small forceps seizing with their point the iris near its periphery, and, dragging out only a little of it, cutting it closely with finely-pointed scissors. A very small opening can thus be secured, which cannot be done if the pupillary edge is severed.

It seems likely that this suggestion may in some cases be worth remembering.

32.—*The Treatment of Amaurosis and Amblyopia by Strychnia.* By Dr. ALBRECHT NAGEL. [Tübingen, 1871, pp. 141.]

Our attention is called in this pamphlet to the hypodermic use of strychnia. The method has been already known for a sufficiently long time to permit of comparative trials by other observers, and their results in the main agree with the statements of Prof. Nagel. It is understood that a large class of cases of amaurosis and amblyopia remain incurable, viz., such as depend on extreme textural change; but for a considerable contingent, which, by other methods are scarcely at all relieved, the hypodermic use of strychnia has been greatly efficacious. Our present methods of diagnosis do not show us the minute structure of the optic nerve and retina, and we are therefore unable to tell, in a case of atrophy, just how far the fibres or ultimate elements are impaired; hence, the trial of any remedy must be attended in all cases with a degree of uncertainty.

But what the method of Prof. Nagel has done is a positive gain. It is as follows: He injects into the temple a moderate dose of nitrate of strychnia, say from  $\frac{1}{16}$  to  $\frac{1}{8}$  grain every day for a week. He expects the effect on vision to be produced within an hour. This may be either in extension of the limits of a contracted field, or in the increase of direct vision. If this result is not obtained within a few days, the dose is increased, but not above  $\frac{1}{2}$  of a grain. If no good effect, the case is regarded as unsuited for this treatment. The diseases for which this treatment has been greatly useful have been, a boy with imperfect amaurosis of one eye, with concentric limitation of the field, and no ophthalmoscopic appearances; after one injection of  $\frac{1}{32}$  grain nitrate strychnia, vision rose in half an hour from  $\frac{15}{LXX}$  to  $\frac{15}{XV}$  and the field was a little enlarged. The improvement was maintained for two days, when another injection of  $\frac{1}{27}$  grain added a little more to the area of the field, and improvement afterward went on spontaneously to perfect cure.

Another case of amaurosis, following measles, complicated with head-symptoms, was treated with perfect success. The interior of the eyes exhibited no lesions. Slow improvement of sight was taking place under general tonics and hygiene; but, to hasten the progress, strychnia was tried. The first injection, of  $\frac{1}{32}$  grain had no effect; a second, of  $\frac{1}{16}$  grain, brought vision from less than  $\frac{1}{CC}$  to  $\frac{1}{XX}$ . In a month after, four injections, v. =  $\frac{15}{XV}$ .

Another case, a child of three years, in whom the state of the optic nerve was almost perfectly normal, although blindness was complete, proved obdurate to strychnia. No treatment did any good.

Other classes of cases successfully handled were asthenopia of the accommodative kind, amblyopia from disuse, traumatic amaurosis, etc. A case of embolus of the central artery of the retina is contributed by Prof. Becker, in which the striking gradations of improvement in the field are shown by diagrams. The case looks more like one of neuritis, with consecutive thrombosis, than pure embolus. At the beginning, the arteries were extremely small, and the nerve a little large, the region of the macula infiltrated. At the close of a month vision was  $\frac{20}{XX}$ , but the field was still limited upward and outward. The infiltration about the macula had dis-



appeared, but the nerve showed appearances of atrophy. Such are some of the important cases discussed in this pamphlet, and the treatment is well worth imitating. The use of strychnia by the stomach, and sprinkled on a blistered surface, does not have the same effect as when injected. This fact, moreover, has been substantiated in treating other diseases of the nervous system, so that the recommendations of Prof. Nagel are well supported.

It is proper to say that Prof. Nagel gives a caution against the excessive use of the remedy, as liable to defeat the object of treatment by irritating too severely the nerve-tissue, even though there may be no evident symptoms of poisoning.

33.—*The Mode by which Inflammation of the Eye is propagated in Meningitis.* By Dr. BERTHOLD. [Archiv. f. Ophth., xvii., 1, 178.]

A child of ten years died of acute meningitis, and, eight days before death, acute inflammation occurred in one eye, with conjunctival chemosis. This symptom soon subsided, but the deep tissues of the globe were infiltrated with pus, giving the appearance of purulent choroiditis. The other eye seemed to be well, but could not be ophthalmoscopically examined. At the section, both eyes were found inflamed: in the one, the disease being a neuro-retinitis, with swelling of the head of the nerve; in the other, the choroid, retina, and vitreous were disorganized. There was purulent meningitis. The communication from the brain-membrane to the eye was, doubtless, by way of the canalis opticus from the arachnoid cavity, along the supra-vaginal lymph-space (Schwalbe), and the communicating space beneath Tenori's capsule, to the subconjunctival space—hence, in one eye the chemosis. Further, in the same way the sub-vaginal lymph-space gives passage to exudation to the head of the optic nerve and supra-choroidal lymph-space. These, rather than the nerve proper, are the probable channels by which meningeal inflammation reaches the eye. The same conclusions have been set forth by others, but the fact is, probably, not so widely recognized among general pathologists as it deserves.

34.—*A Contribution to the History of the Development of Myopia, based upon Examination of 4,358 School-Children.* By Dr. FRIEDRICH ERISMANN, of St. Petersburg. [Archiv. für Oph., xvii., 1, 1-79.]

By this patient inquiry some valuable facts are elicited, and too much praise can hardly be awarded to such workers as Dr. Erisman and Dr. Cohn, for their industry. The chief results obtained by the examination are as follows:

Of the whole number, viz., 4,358, he found emmetropes, 26 per cent.

Myopes, 30.2 per cent.

Hypermetropes, 43.3 per cent.

Amblyopes, 0.5 per cent.

The youngest children were ten years old. The unexpected fact above shown is the small number of normal eyes, only  $\frac{1}{4}$ , and the high percentage of hypermetropes. In the youngest classes  $\frac{2}{3}$  were hypermetropic. It would appear that, for early life, hypermetropia, and not emmetropia, is the normal condition. But, as the child grows older, the eyeball becomes elongated until myopia may be developed—as happens

at 11 years of age in 20.6 per cent.

“ at 13 “ 28.6 “

“ at 15 “ 39.3 “

“ at 19 “ 47.2 “

Acuity of sight, among all the children, was:

1 in 85.6 per cent.

Between  $\frac{2}{3}$  and 1 in 6.8 “

Less than  $\frac{2}{3}$  in 7.6 “

Among the myopics, who were 1,317, the vision was:

		1 in 77.7 per cent.	
Between	$\frac{2}{3}$	and 1 in 12.5	"
Less than	$\frac{1}{3}$	in 9.8	"
Choroidal atrophy around the nerve was absent in 5 per cent.			
Of moderate extent			in 71.2 "
Of large extent			in 23.8 "

This table, and the one above, explain each other, and they together show how the acuity of vision suffers loss by the development of myopia. For among these  $v. = 1$  is less by 8 per cent. than among the whole number taken together, including the myopes. The most serious cases of choroidal atrophy were naturally found among the higher grades of myopia.

Insufficiency of the recti interni was studied in all the myopes. For the weaker degrees, the distance taken was 8 to 10 inches; for the higher grades, the distance was shorter, as they would choose for easy reading. This lesion is not considered, properly, the cause of myopia, but both it and myopia are regarded as resulting from the same cause. Out of 1,245 myopes, were 6 cases of strabismus convergens. Taking the remainder, there was found no insufficiency in 67.4 per cent.

Up to 6°	"	"	in 12.9	"
" 10°	"	"	in 13.3	"
Above 10°	"	"	in 2.6	"
Relative strabismus divergens			in 2.9	"
Absolute	"	"	in .9	"

That is, 32.6 per cent. of all myopes suffer from disturbance of the recti interni. Where myopia is more than  $\frac{1}{2}$ , only 23.1 per cent. retain normal muscular power. But, even with the lowest grades of myopia, 23.8 per cent. have muscular troubles. It also appears that choroidal atrophy does not depend on muscular insufficiency.

Concerning hereditary tendency to myopia, it appears that 30.6 per cent. come from parents of whom one or both are myopic, and a larger proportion of them than of others have choroidal atrophy.

Another important inquiry is, What influence do spectacles have upon the myopia of children? Out of 1,245, 122 used glasses, and the degree of myopia was more than  $\frac{1}{2}$  in 88 of these. It appears that, out of the 122, only 15 had neutralizing glasses; 84 had them too weak, and 23 had them too strong. It also appears that choroidal atrophy becomes greater and more frequent, vision less acute, and muscular trouble more common.

"It is, in a word, a simple fact that the use of concave glasses has a positively bad effect on eyes which are undergoing a change in their state of refraction, and it is a misfortune to be obliged to order glasses for a youthful myopic person." If they must be used, as they frequently must, for music, drawing, writing, etc., they should be laid aside when not required. The more constant use of glasses should be deferred to a more adult age, when the tissues are stronger, and able better to resist distention.

The causes which lead to production of myopia are insufficient light, badly-constructed tables and seats, as predisposing to the one most effective agent, namely, persistent tension of accommodation. The attachment of the ciliary muscle to the cornea in front, and the choroid behind, readily explains how the choroid, in efforts of accommodation, must be dragged forward. It has been shown that the ciliary processes are also pulled forward, while the *zumla* is relaxed, and the vitreous pressed.

To this must be added the influence of the external muscles, and on this point Graefe has laid great stress, especially in cases of insufficient interni. Both these factors, the internal and the external muscular apparatus, can excite congestion of the deep vessels of the globe, and this again

tends to the increase of myopia. The great agent of mischief is forced and spasmodic effort of accommodation. The lens does not regain its normal curvature; and thus an eye, at first hypermetropic, passes over its myopia. The injurious effect of badly-chosen glasses is thus fully explained.

The importance of securing to children, in their studies, suitable light and seats, and of watching their habits of reading, is, by the above investigations, most urgently set forth. Suitable care may arrest or prevent a serious mischief to sight, while the miseries of myopes are largely due to the culpable neglect of parents and teachers.

35.—*On the Use of the Ophthalmoscope.* By Dr. ALBUTT. [London, 1871, pp. 405, 8vo.]

It hardly comes within the sphere of this report to review a book like the above. But a few words may not be amiss. Its title in full is, "On the Use of the Ophthalmoscope in Diseases of the Nervous System and of the Kidneys, also in certain other General Disorders." The great value of the book is in its consideration of diseases of the nervous system, and this constitutes its bulk. In this department it is decidedly the best treatise in English; it is based upon actual observation. It is written in a candid spirit, while there is not the fulness of detail which would be proper in an ophthalmic treatise; the author shows accuracy in his acquaintance with the eye, which entitles his opinions and observations to confidence. The book is written in the interests of general medicine and pathology, and is deserving the study of every practitioner. It is true that errors have crept into it, as, on page 38, he expresses the opinion that arterial pulsation is never visible under any circumstances, natural or artificial. Perhaps the intent in this sentence is to exclude glaucoma, in which spontaneous pulse does occur in the arteries, but it is true in another class of cases also, viz., certain heart-diseases, that the arteries pulsate. We cannot attempt to analyze the book, but mention it rather to commend it to general perusal, and congratulate the author upon having written what is well worth reading. This remark may be thought more pointed if the reader will turn to the half-humorous and modest sentences with which Dr. A. closes his book, on page 297.

Another valuable contribution to our resources is the fifth part of Stricker's "Handbuch der Lehre von den Gemeben," in which the anatomy of the ear and the eye are treated in a masterly way by master-hands. Special chapters are written by different authors: for instance, on "The Retina," by Max Shultze; on "The Iris and Choroid," by Iwanoff; on "The Circulation," by Leber; on "The Lymphatics," by Schwalbe; on "The Cornea," by Rollett, etc.

We are happy to say that a translation is being made by competent persons.





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